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SMARA UPDATE

The Quarterly Newsletter of the Department of Conservation, Office of Mine Reclamation

2006 SMARA Training Workshops – An Opportunity to Meet, Learn, and Share

Over the past few years, the Office of Mine Reclamation (OMR) has had its fair share of change, particularly in the area of personnel. The same is true of many OMR stakeholders, including lead agencies and mine operators. Under such circumstances, it is sometimes difficult to maintain continuity of service and prevent gaps in institutional knowledge. With this in mind, and in response to requests from lead agency representatives, OMR is conducting a series of seven two-day SMARA training workshops to help lead agencies and mine operators understand their roles and responsibilities under SMARA.

Day one of each workshop is conducted by the Reporting and Compliance Unit (RCU), and day two is conducted by the Reclamation Unit (Rec Unit). Each day, workshop attendees are provided with a binder that includes copies of presentations and other reference materials.

The workshops began in January and will continue through November. They have been very well attended. Participants have included lead agency planners, mine operators, consulting firm representatives, and members of the State Mining and Geology Board.

Although the curriculum of the workshops is designed primarily for our lead agency partners, the workshops are proving to be of considerable value to all who attend.

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Inside this issue:

WORKSHOPS *(Continued from cover)*

Some workshop attendees expressed appreciation for the overview on day one of OMR's process for reviewing and commenting on cost estimates and the summary of commonly made errors. Others said the information and graphics of day two, concerning how to identify and quantify species diversity, richness, and density, were particularly helpful and enlightening. OMR management and staff have found that the opportunity to meet and interact face-to-face with lead agency staff, mine operators, and other attendees is especially valuable. They hope to build on the relationships that are established or strengthened at the workshops.

Compliance Section Supervisor Kim Schwab explains financial assurances to a full house in San Diego

Workshop attendees are encouraged to ask questions during the presentations, as this allows for information to be clarified, additional points to be addressed, and interesting issues and concerns to be raised and discussed. It also provides an opportunity for participants to share their experiences in dealing with the requirements of SMARA. The substance of these discussions will be incorporated into future workshops and added to the OMR website as Frequently Asked Questions (http://www.consrv.ca.gov/OMR/helpFaq.htm).

The lowdown on reclamation plans is laid out by Reclamation Unit Manager Jim Pompy

If you have not yet participated in a SMARA training workshop, OMR encourages you to take advantage of this opportunity to meet, learn, and share. Dates of the upcoming workshops, a list of topics to be covered, and online registration can be found at http://www.consrv.ca.gov/OMR/workshops/current_schedule.htm.

Dolores Padilla
Compliance Analyst

End Uses: Lakes and Wetlands for Wildlife Habitat

SMARA Sections 2772(c)(7) and (8) require that all reclamation plans include "a description of the proposed use or potential uses of mined lands after reclamation and a description of the manner in which the reclamation, adequate for the proposed use, will be accomplished." The large holes left in the ground by sand and gravel pits provide excellent opportunities to create wetlands and lakes as habitat for fish, waterfowl, and other wildlife as long as a source of water is available. But does the simple filling of these excavations achieve this end use? To answer this question, we may need to ask another: What makes a body of water function as a quality wildlife habitat?

Gravel excavations naturally filled by groundwater will produce lakes, but their deep pits and steep banks provide limited habitat. A well-implemented restoration design can capitalize on the potential of these water features to create a unique aquatic and riparian ecosystem with high diversity, productivity, and functional wildlife habitat (see Figure 1). Natural lakes and wetlands have irregular, sinuously shaped shorelines with areas of shallow water that support emergent marsh vegetation. A shallow bench, multiple benches, or a continuous slope at 4 or 5:1 (H:V) up to 12:1 around the shoreline can be planted with tules, rushes, sedges, and cattails. The addition of peninsulas, bays, and islands can provide important feeding, resting and nesting sites for waterfowl. Islands should be greater than 3 feet in diameter with a height of 2 to 3 feet above the projected mean high water level and should receive 6 to 8 inches of topsoil for revegetation. A curved or S-shape is ideal for the islands to minimize wave action that could potentially cause bank erosion.

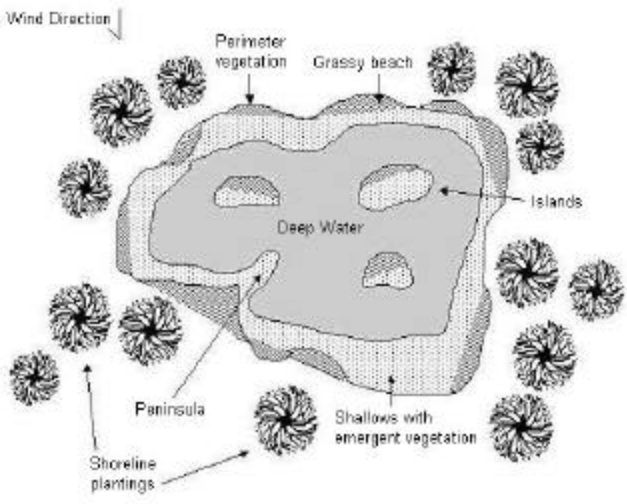

Figure 1—Design of a gravel pit reclaimed to waterfowl habitat.

While deep areas from which materials have been recovered will make up the majority of a lake, ideally about 25 percent of a lake around the perimeter and surrounding islands should be only 6 inches to 6 feet deep. Feeding areas for dabbling ducks need to be 6 to 12 inches deep. From a wetland perspective, the more shallow areas the better. On the other hand, depths of over 4 feet create open water, pools, and trenches that are valuable for diving birds and fish and protect the islands from predators. The upland areas, graded at no steeper than a 2:1 slope, also serve important habitat functions for cover, feeding, breeding, and movement.

Revegetation of the project will achieve three objectives: 1) stabilizing the shoreline and surrounding uplands from erosion; 2) establishing food and cover for wildlife; and 3) enhancing the aes-

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thetic value of the site. Native plants also enable the pond or lake to provide wetland functions and values. With proper grading, different plant communities can be established along a moisture gradient, depending on the amount of inundation the plants will receive, from a wet marsh to a riparian zone to dry uplands. A key element in restoring topography is creating stable slopes that blend with the surrounding topography. Rectilinear slopes are inappropriate because they are prone to erosion and look unnatural.

Specific plants can be chosen because they are native to the region and for the benefits they will provide to target species for food and cover. A diverse mix of herbaceous plants, shrubs, and trees should be chosen for the plant palette. Although some natural colonization will occur, it cannot be relied upon solely for revegetation. Introduction of locally collected, ecotypically adapted species in the appropriate hydrologic zones will ensure successful, self-sustaining wetland plant communities. Vegetation around the shoreline should be planted in an irregular pattern of alternating groupings rather than as a constant thick ring of vegetation around the entire perimeter. Open grassy areas can alternate with clumps of woody plants. Peninsulas and islands should be planted in grasses without shrubs so that ducks and other water birds can easily see approaching predators. Trees removed during mining can be stockpiled and later placed near the shore, or young trees can be installed as container plants.

Wildlife habitat created from a gravel pit in Calaveras County

Brush piles, logs, stumps, and rocks can be placed in and around the water as habitat elements to provide cover, denning and haul-out spots. Logs and other materials along the shore can also act as barriers to stop waves from eroding the banks. Nest boxes or platforms may be valuable additions. For sensitive species, buffer areas may be necessary in the design to minimize disturbance.

Mine operators who plan to create wetlands for wildlife habitat should provide sufficient design details in their reclamation plans. This will satisfy the requirement in SMARA Section 2772(c)(8) for a "description of the manner in which the reclamation, adequate for the proposed use, will be accomplished." Maps with plan views and cross-sections should show the depths and grades of the wetland features. Plants used for revegetation should

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be listed in separate categories by plant community and shown on the map. Each plant community will have separate performance standards and monitoring programs. Invasive exotic species will also need to be monitored and managed.

Restoring a mine site to wildlife habitat as the end use can work, but simply filling a pit with water is not enough. Consulting with biologists, hydrologists, and engineers with expertise in wetlands will ensure successful design and implementation. Early consultation with the Department of Conservation, the Department of Fish and Game, and the U.S. Fish and Wildlife Service at the design phase also will be invaluable, making the process of reclamation and compliance easier in the long run. The adage, "build it and they will come," applies to such carefully designed wetlands, as animals will be attracted to the site and move in as it becomes more habitable. Establishing functional, self-sustaining wetland ecosystems can take years, but they contribute greatly to an area's ecological health, biodiversity, and natural beauty.

Leah Gardner Miller
Environmental Scientist

New Faces at OMR

The Reporting and Compliance Unit (RCU) is almost fully staffed after the addition of three new engineering geologists and one new office assistant. **Greg Marquis** moved from the Los Angeles area to Northern California in 1997 to study geology at UC Davis. He received his bachelor's degree in geology in 2001 and was fortunate enough to immediately begin state service with the Central Valley Regional Water Quality Control Board after having worked there as a student assistant. Greg spent the last five years with the Mercury Total Maximum Daily Load (TMDL) Unit, leading mercury monitoring programs in the Sacramento River and San Joaquin River as well as assisting in writing TMDLs for the Upper Sacramento River and the Delta. Greg is looking forward to helping the State of California reclaim mined lands.

Laura Samrad's career as a geologist began after she earned her bachelor's degree in geology at Sonoma State University. She went to work for the California Department of Transportation (Caltrans) working on landslides in Santa Cruz and the Sonoma coast. Laura conducted large geological investigations involving drilling for geotechnical evaluation, mapping, and geophysical exploration for many large highway-widening projects, such as High-

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way 92 at Half Moon Bay and Highway 101 in Marin. She conducted earthquake-related activities for Caltrans involving regional mapping, opening trenches, and identifying the locations of active fault strands. After three years with Caltrans, Laura went back to school for her master's degree in geology at California State University, Hayward. Laura's graduate studies focused on soil and rock engineering. While in graduate school, she worked for the USGS Earthquake Hazards Team on the San Andreas Fault (trenching) at Watsonville and Wrightwood for several trenching seasons. Following graduation, she worked as a consultant for a number of years mapping and preparing geological studies to identify geological and seismic hazards. She also taught classes at both CSU Hayward and CSU Sonoma. She belongs to the San Francisco Association of Engineering Geologists, the Geological Society of America, and the North Coast Geological Society. Laura loves exploration, gemstones, and mining. She is very excited to be a part of OMR, where she hopes to learn all aspects of mining and SMARA.

Arthur Reed is the latest in a series of new geologists in the RCU. This is Art's first position with the State. Art's background has been in mechanical contracting. Prior to coming to OMR, he worked in the plumbing/pipefitting trade, supervised several water/wastewater construction projects, and then was self-employed in this same field for several years. In 2002, Art returned to UC Davis to complete a bachelor's degree in geology, going on to earn a master's of science degree in geology from California State University, Sacramento. Art brings with him much experience in construction estimating and excavation, and a love of geology, which makes for a good fit in the compliance section of OMR. "I really feel welcomed here and appreciate the amount of cooperation I have found in this office. He said, "I have a love for California and hope to learn about areas in this state that I had previously overlooked."

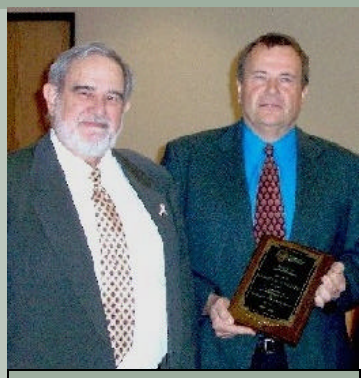
April Balestreri, a native of Sacramento, is brand new to state service. April comes to the Department of Conservation with a diverse background. For the past two years, she worked for the Home Depot Builder Solutions as a purchasing coordinator. Prior to that, she worked for four years in a law firm as a legal assistant, a billing assistant, and an accounting assistant. April comes to us with great enthusiasm and an eagerness to learn about SMARA.

Two SMGB Members Retire...

Richard Ramirez with DOC Director Bridgett Luther.
Photo courtesy of Mark Oldfield

The State Mining and Geology Board (SMGB) recently lost two members when their four-year terms expired. **Robert Hablitzel** and **Richard Ramirez** were recognized by Department of Conservation Director, Bridgett Luther, at the March 9, 2006, SMGB meeting in Sacramento.

Robert Hablitzel served on the Board from March 2001 to March 2006 in the position of Landscape Architect. He served on the Board's Surface Mining Standards Committee, the Policy and Legislation Committee, and the Minerals and Geologic Resources Committee.



Board member Robert Tepel with departing member Robert Hablitzel.
Photo courtesy of Mark Oldfield

Richard Ramirez served from October 1999 to March 2006 in the position of Non-Specialized Public Member. He sat on the Board's Geohazards Committee, the Surface Mining Standards Committee, the Minerals and Geologic Resources Committee, and the Grading Standards Technical Advisory Committee.

Their willingness to give freely of their time, energy, and ideas had a marked, positive effect on the performance of the Board in its implementation of the Surface Mining and Reclamation Act, the Alquist-Priolo Earthquake Fault Zone Mapping Act, and the Seismic Hazards Mapping Act. The SMGB and the Office of Mine Reclamation gratefully acknowledge both Mr. Hablitzel's and Mr. Ramirez's dedicated service to the Board and to the People of the State of California, and commend them for a job well done.

The departure of these two members left the nine-member Board with three vacancies.

...and One is Appointed

Director Bridgett Luther and State Mining and Geology Board Executive Officer Stephen Testa swear in the newest board member, Cheryl Bly-Chester, appointed June 6 by Governor Schwarzenegger. Ms. Bly-Chester has served as owner and principal engineer for Rosewood Environmental Engineering since 1997 and was a member of the State Reclamation Board from 2005 to May 2006. She replaces Richard Ramirez in the position of Non-Specialized Public Member.

Photo courtesy of Don Drysdale

Paymaster Mine Hazards Remediated

The AMLU's Jonathan Mistchenko, CCC crew leader Jimmy Galvan, and a CCC member drilling a hole in preparation for the placement of a T-post.

Photo by Douglas John

Consistent with the philosophy of the Office of Mine Reclamation (OMR) for developing working partnerships, in March 2006, the Abandoned Mine Lands Unit (AMLU) teamed up with a number of partner agencies to fence seven dangerous abandoned mine shafts (vertical openings) and two enormous stopes (excavations used in the mining of ore) at the Paymaster Mine on BLM property near Blythe. Partner agencies included the U.S. Bureau of Land Management (BLM) and the California Conservation Corps (CCC). One shaft was reported to the AMLU as "large enough to drive a school bus into." Located in a desert wash that runs through the hills east of the Chocolate Mountains, the Paymaster Mining District is a popular area that receives regular visitation. Roads lead straight into the stopes, with recent evidence that vehicles have driven very close to the edge, while the seven shafts lie adjacent to a well-traveled road in the area.

This very hazardous abandoned mine site was brought to the attention of the AMLU by Greg Pelka of the State Lands Commission and Pat Brown of Brown-Berry Biological Consulting. The AMLU subsequently contacted James Blair, a geologist in the BLM's El Centro Field Office. Blair conducted an environmental review under the National Environmental Policy Act (NEPA) and completed the necessary permitting for the Paymaster Mine hazard mitigation project to commence. The AMLU also contracted with the CCC to help install fencing around the shafts and stopes.

The CCC brought out a very capable group of five young adults, supervised by crew leader Jimmy Galvan, to assist the AMLU staff. The work was arduous, but spirits remained high throughout the project. Several of the shafts required the installation of T-

A CCC crew secures a corner brace for a fence at one of seven abandoned mine shafts.

Photo by Douglas John

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CCC crew members learn how to stretch fencing wire.
Photo by Douglas John

posts in bedrock, which necessitated the use of a hammer drill to create holes for the T-posts. Steep hills adjacent to some of the features added another level of difficulty to the project. After completion of the project, Mr. Blair wrote: "None of this would have been possible without the considerable help and effort of the OMR coordinating this effort, and contributing substantial staff time and funds. The CCC, which was contracted by OMR, did an outstanding job providing quality labor at a competitive cost. I really hope that this partnership continues to grow and is nurtured by the BLM in California—especially here in El Centro."

Halfway through the project, word was received that two men riding off-road in an area where travel is restricted to identified safe routes, had driven a Suzuki Samurai into an unfenced shaft near Ogilby, CA. The AMLU's Sarah Reeves left the Paymaster site to assist the BLM in developing recommendations to remediate this newly identified hazard in the near future. The two men had driven up the waste pile surrounding the shaft with no idea of what lay in wait for them at the top. The men spent the night in their vehicle after falling 30 feet to the bottom of the shaft and waiting 20 hours before being rescued by the Yuma, Arizona Fire Department's Technical Rescue Team. Fortunately, these men escaped with only minor injuries, but often this is not the case. This incident highlights the importance of cooperative work such as that recently performed at the Paymaster site.

Sam Hayashi
Research Analyst II

Note: The AMLU can provide public agencies with technical and financial assistance to remediate hazards at abandoned mine sites on public lands. For further information, contact Cy Oggins, AMLU Manager, at (916) 323-9226. To report an abandoned mine on public or private property, call the AMLU's toll-free hotline at 877-OLD-MINE.

Suzuki Samurai, before and after removal from a 30-foot mine shaft in Ogilby, CA.
Photos courtesy of Yuma Fire Department and BLM

Key Elements of the Reclamation Plan Review Process: Accurate and Complete Geologic and Geotechnical Reports

Section 2774(c) of the Surface Mining and Reclamation Act (SMARA) requires that, prior to approving a surface mining operation's reclamation plan, the lead agency shall submit the plan, information from any related document prepared, adopted, or certified pursuant to the California Environmental Quality Act (CEQA), and any other pertinent information to the Director of the Department of Conservation for review. All documentation related to the submission of the reclamation plan must be submitted to the Director at one time. Examples of related documentation include site-specific geologic and geotechnical reports, such as engineering geology and hydrogeology reports, and slope stability investigations that are completed for the proposed surface mining operation and reclamation activities.

To ensure complete and timely review of reclamation plans and supporting documentation, lead agencies should encourage project proponents to submit accurate and complete geologic and geotechnical reports. The Office of Mine Reclamation (OMR) has found that the accuracy of such reports is often directly related to the qualifications of the report preparer(s). Therefore, lead agencies should require and verify that technical reports submitted in support of reclamation plans have been prepared, signed, and stamped by professional geologists or professional engineers licensed to practice within the State of California. The State Mining and Geology Board (SMGB) provides an excellent example of this practice. It includes the following note within its public meeting/hearing agendas regarding professional reports and documents:

> "Professional reports, documents, calculations, plans, specifications, maps, cross sections, boring or trench logs, and diagrams, hereafter collectively referred to as documents, which must, under applicable law, regulation, or code, be prepared by or under the supervision of licensed professionals will not be accepted or considered by the State Mining and Geology Board unless at least one copy of the document bears an original signature, stamp impression or seal, and date affixed by the author in accordance with applicable law and regulation. Unless otherwise directed or agreed in advance, all professionally prepared documents included in Board, or Board committee, meeting packages or presented to the Board in a meeting are to be in final form and must be signed, stamped or sealed, and dated in accordance with applicable law and regulation."

Both the California Board for Geologists and Geophysicists (http://www.geology.ca.gov/) and the California Board for Professional Engineers and Land Surveyors (http://www.dca.ca.gov/pels/) maintain directories of licensed individuals. Additionally, technical reports should clearly identify the name and title of the author(s), and the company name and contact information should be included.

With regard to report completeness, lead agencies should require that geologic and geotechnical reports adhere to established, commonly accepted formats. The California Board for Geologists and Geophysicists (BGG), the SMGB, and the California Geological Survey (CGS) provide information for conducting geologic investigations, composing geologic reports, and reviewing geologic reports.

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The following brief list of websites contains general and specific guidance documents that may assist both professional consultants preparing reports and lead agency staff responsible for reviewing them.

Guidelines for Various Geologic Reports (from the California BGG):

http://www.geology.ca.gov/publications/engineering.pdf
http://www.geology.ca.gov/publications/groundwater.pdf
http://www.geology.ca.gov/publications/earthquake.pdf
http://www.geology.ca.gov/publications/geophysical.pdf

Guidelines for Evaluating and Mitigating Seismic Hazards in California (SP 117 – adopted in 1997 by the SMGB):

http://gmw.consrv.ca.gov/shmp/webdocs/sp117.pdf

Recommended Landslide and Liquefaction Hazard Analysis and Mitigation Procedures (for implementation of SP 117, available through the Southern California Earthquake Center):

http://www.scec.org/resources/catalog/hazardmitigation.html#liq

Guidelines for Reviewing Geologic Reports (CGS Note 41):

http://www.consrv.ca.gov/cgs/information/publications/cgs_notes/note_41/index.htm

Guidelines for Evaluating the Hazard of Surface Fault Rupture (CGS Note 49):

http://www.consrv.ca.gov/cgs/information/publications/cgs_notes/note_49/note_49.pdf

Guidelines for Geologic Investigations of Naturally Occurring Asbestos in California (CGS SP124):

http://www.consrv.ca.gov/CGS/minerals/hazardous_minerals/asbestos/Asbestos_Guidelines_SP124.pdf

California Regulatory Hazard Zones Information (CGS website):

http://www.consrv.ca.gov/CGS/geologic_hazards/regulatory_hazard_zones/index.htm

Guidelines for Preparing Geologic Reports for Regional-Scale Environmental and Resource Management Planning (CGS Note 52):

http://www.consrv.ca.gov/CGS/information/publications/cgs_notes/note_52/note_52.pdf

Ensuring that accurate and complete geologic and geotechnical reports are submitted with reclamation plans will assist OMR's staff during its review process. The web links provided above are a small sampling of information available for both the composer and the reviewer of reports that may be associated with reclamation plans. As always, OMR staff encourage reclamation plan proponents to contact local and state permitting and reviewing agencies early in the project planning process.

Will Arcand
Engineering Geologist

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The purpose of this publication is to impart the latest reclamation tips as well as changes in SMARA-related legislation or the interpretation of existing statutes by court decisions.

Director: *Bridgett Luther*
Assistant Director for OMR: *Douglas W. Craig*
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The New Office of Mine Reclamation Logo

Recently, each division of the Department of Conservation designed new, individual logos to symbolize their unique programs. The logos are intended for division letterheads and for use on maps and other printed products, such as the SMARA Update. The Office of Mine Reclamation chose to represent its programs with a miner's pick that is transformed into a tree, symbolizing the progress from mineral extraction to the reclamation of mined lands. The new logo also includes a mountain range and a gently flowing river. These images are consistent with the intent of SMARA, which recognizes that the extraction of minerals is essential to the continued well being of the state and to the needs of society, and that the reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment and to protect the public health and safety. The new logo was designed by Sam Hayashi of the Abandoned Mine Lands Unit with input from other OMR staff.

OMR - Ensuring mined lands are returned to a beneficial end use after mining.